

III. Alternatives, Including the Proposed Action

INTRODUCTION

This chapter presents the alternatives for a proposed refuge within the Paint Rock River watershed, including the proposed action that the Service believes best meets the outlined purpose and need and best serves the purposes, vision, and goals for the proposed Paint Rock River NWR. The following vision was developed for the proposed refuge:

The Paint Rock River National Wildlife Refuge will protect important wildlife and habitats of the Paint Rock River watershed, a unique ecosystem that supports a high diversity of aquatic, terrestrial, and karst habitats. Together with partners, the Fish and Wildlife Service will help protect and improve the water quality, water quantity, and hydrology of the Paint Rock River, benefitting numerous imperiled freshwater species and human communities utilizing the area's water resources. The refuge will conserve, protect, and manage one of the largest contiguous tracts of hardwoods remaining in eastern North America for current and future generations. As part of a system of public and private conservation lands, the refuge will expand outdoor recreational opportunities, helping maintain a way of life and supporting local economies.

Several purposes were identified to further the vision for the refuge as follows:

"conservation, management, and ... restoration of the fish, wildlife, and plant resources and their habitats ... for the benefit of present and future generations of Americans" 16 U.S.C. 668dd(a)(2) (National Wildlife Refuge System Administration Act), as amended by amended by Pub. Law 105-57(The National Wildlife Refuge System Improvement Act of 1997);

"to conserve (A) fish or wildlife which are listed as endangered species or threatened species...or (B) plants" 16 U.S.C. 1534 (Endangered Species Act of 1973);

"the conservation of the wetlands of the Nation in order to maintain the public benefits they provide and to help fulfill international obligations contained in various migratory bird treaties and conventions" 16 U.S.C. 3901(b), 100 Stat. 3583 (Emergency Wetlands Resources Act of 1986);

"for use as an inviolate sanctuary, or for any other management purpose, for migratory birds" 16 U.S.C. 715d (Migratory Bird Conservation Act);

"for the benefit of the United States Fish and Wildlife Service, in performing its activities and services. Such acceptance may be subject to the terms of any restrictive or affirmative covenant, or condition of servitude" 16 U.S.C. 742f(b)(1) "for the development, advancement, management, conservation, and protection of fish and wildlife resources" 16 U.S.C. 742f(a)(4)(Secretarial powers to implement laws related to fish and wildlife) (Fish and Wildlife Act of 1956);

"suitable for (1) incidental fish and wildlife-oriented recreational development, (2) the protection of natural resources, (3) the conservation of endangered species or threatened species" 16 U.S.C. 460k-1 "the Secretary ... may accept and use ... real ... property. Such acceptance may be accomplished under the terms and conditions of restrictive covenants imposed by donors" 16 U.S.C. 460k-2 [Refuge Recreation Act (16 U.S.C. 460k-460k-4), as amended]

Four overarching goals were then developed for the proposed refuge. The goals are intentionally broad, descriptive statements of the desired future conditions. They support the proposed refuge purposes and the proposed vision statement. Two alternatives are analyzed in this Draft LPP/EA: Alternative A (No Action – no new refuge) and Alternative B (Proposed Action - new refuge). The alternatives are described in terms of how they address the proposed refuge goals, outlined below. Additional details of how a potential new refuge would be operated and managed can be found in the Conceptual Management Plan and the interim compatibility determinations (Appendices A & B). These documents provide general, interim management direction for the proposed refuge until development and approval of a considerably more detailed comprehensive conservation plan. If the refuge is approved, the Service would develop a comprehensive conservation plan within 15 years of approval. The goals established for this proposed refuge are as follows:

Goal 1. Functional Conservation Landscape

The Paint Rock River NWR, as part of the Appalachian Landscape Conservation Cooperative (LCC), would contribute to a more connected and functional conservation landscape that would provide effective habitat connections between existing conservation areas, reducing fragmentation, and protecting and restoring large tracts of contiguous hardwood forests.

Goal 2. Habitat for Fish and Wildlife

The refuge would provide a wide range of quality Cumberland Plateau habitats to support native wildlife and plant diversity, including migratory birds, federal and state listed species, and other imperiled species.

Goal 3. Enhanced Water Quality, Water Quantity, and Improved Hydrology

The refuge would contribute to water quality, water quantity, and hydrology of the Paint Rock River watershed to benefit the area's high aquatic diversity and help protect the water supply for residents downstream.

Goal 4. Wildlife-dependent Recreation and Education

Refuge visitors of all abilities would enjoy opportunities for compatible hunting, fishing, wildlife observation and photography, and environmental education and interpretation, while increasing knowledge of and support for conservation of the important landscape of the Paint Rock River watershed.

Under the National Environmental Policy Act (NEPA), the Service developed and evaluated a reasonable range of alternatives. The proposed action defines what the Service would do or recommend, but could not implement without considering other reasonable, environmentally sensitive alternatives. Other reasonable alternatives to the proposed action that could also be viewed as fulfilling the proposed purposes of the refuge are described in this Draft LPP/EA, thereby offering the Service and the reviewing public an opportunity to consider a range of reasonable alternatives for the proposed action, and thus fulfilling one of the key tenets of NEPA.

FORMULATING ALTERNATIVES

The Service developed and evaluated a reasonable range of alternatives based on the issues raised during internal and public scoping by the Service, other federal agencies, the public, Native American tribal governments, state and local governmental agencies, organizations, and local businesses. According to the Service, reasonable alternatives would include those that help achieve the missions of the Service and Refuge System; support the purposes for which the refuge might be established, and its vision and goals; and respond to issues and opportunities identified during the planning process.

As part of the planning process for this proposed action, a conservation prioritization tool was used. The entire Paint Rock River drainage basin, comprised of 11 sub-watersheds (i.e., hydrologic unit level 12 or HU-12), spans over 290,000 acres. The 11 sub-watersheds differ in their land cover and natural resources. To help focus our conservation planning efforts, a land prioritization model was developed to rank sub-watersheds in terms of their conservation value. Each sub-watershed was assigned a value of low, medium, or high conservation value based on three criteria: percent forest cover, number of globally ranked species (G1, G2, and G3), and the number of caves. Based on the model, the following four sub-watersheds were determined to have high conservation value: Cole Spring Branch, Estill Fork, Hurricane Creek, and Larkin Fork.

Within each high priority sub-watershed, a set of criteria was applied to rank individual parcels based on their conservation value. These criteria included river frontage, percent forest cover, size, and other factors.

Using the sub-watershed and parcel prioritization models, as well as other factors, the Service developed its proposed action. This “action alternative” is compared to the NEPA-required “No Action” alternative, which serves as the baseline.

This Draft LPP/EA describes and analyzes the following two alternatives:

- Alternative A: No Refuge (No Action Alternative)
- Alternative B: Proposed Action – establishment of a 40,505-acre Conservation Partnership Area (CPA) and 25,120-acre refuge in Tennessee portion of Paint Rock River Watershed

The two alternatives evaluated in detail are listed, followed by CPA maps for each of the action alternatives.

In addition to the No Action Alternative and Alternative B, two other alternatives were evaluated that included lands in Alabama, which were not further considered under this proposal. One of these preliminary alternatives included five CPAs totaling 146,700 acres in the following sub-watersheds: Cole Spring Branch, Estill Fork, Hurricane Creek, Larkin Fork, and Williams Cover-Paint Rock River. The other preliminary alternative consisted of three CPAs delineated by the following three sub-watersheds: Estill Fork, Hurricane Creek, and Larkin Fork, with a combined size of about 99,004 acres. These preliminary alternatives were not pursued in this proposal in order to allow efforts to focus on Alternative B, which directly supports one of Tennessee’s priorities for America’s Great Outdoors (AGO), namely to create a national wildlife refuge in the upper Paint Rock River watershed, as identified in the AGO’s Fifty State Report (AGO 2011).

DESCRIPTION OF ALTERNATIVES

Each of the action alternatives is based on a different configuration of a CPA, which is composed of sub-watersheds, as further detailed above. Within each CPA, the Service identified lands which would be of high conservation value, based on criteria such as river frontage, forest cover, etc. The methodology for determining priority sub-watersheds and lands within each sub-watershed is detailed in this Draft LPP/EA. The description for each alternative also includes the possible management activities that would help meet each of the four overarching goals of the proposed Paint Rock River NWR. Maps are used to illustrate lands that could be included under each alternative.

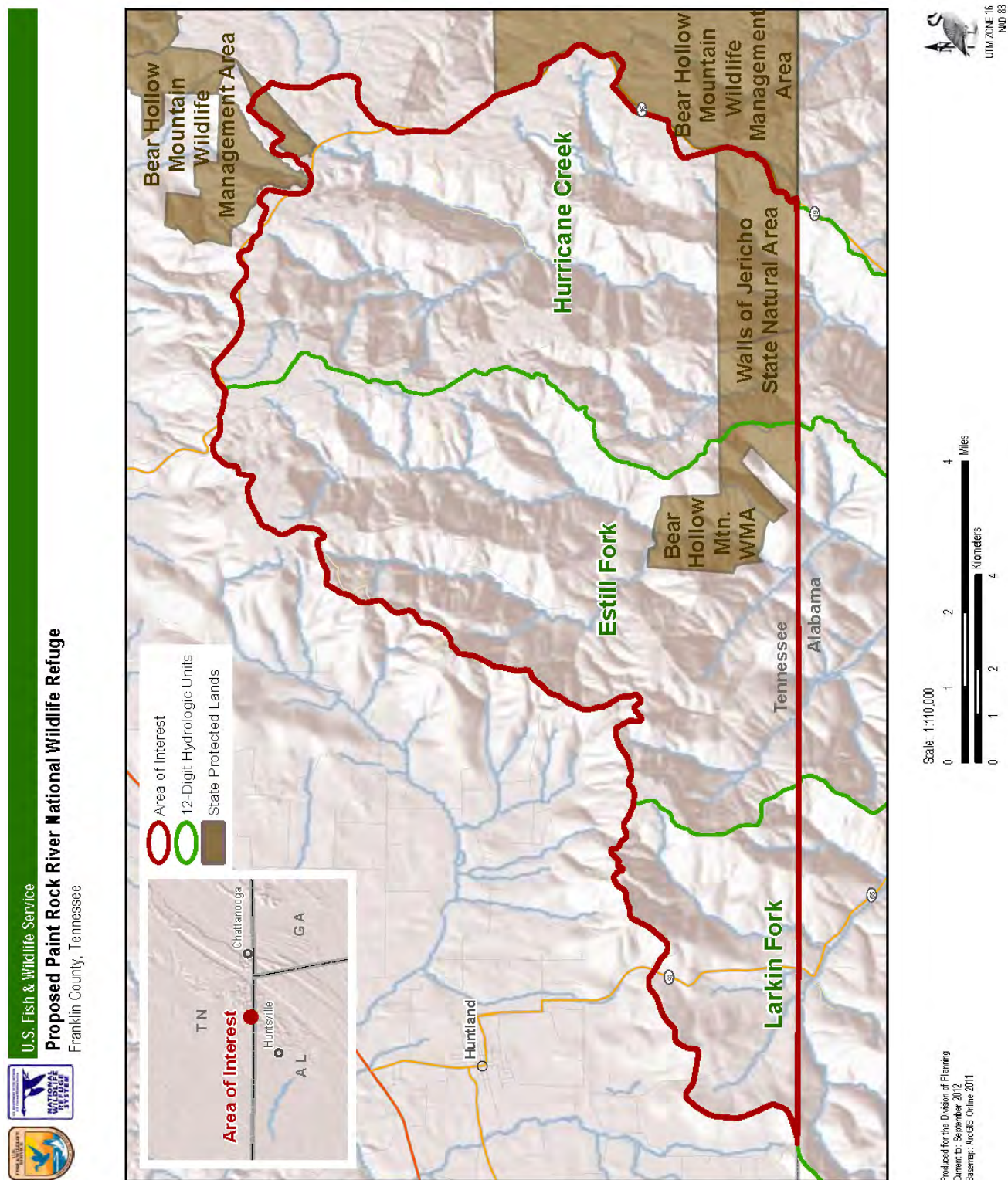
To help explain the alternatives, definitions for several terms are listed below.

<i>Conservation Partnership Area:</i>	Defines the area within which the Service would have the authority to acquire (up to 25,120 acres) in fee title or easements from willing sellers. Under Alternative B, the proposed Conservation Partnership Area (CPA) would be 40,505 acres.
<i>Area of Influence:</i>	Defines the Area of Influence (AOI) in which the Service would analyze the potential environmental effects in this Draft LPP/EA. The AOI for this project is limited to the Tennessee portion of the Paint Rock River watershed (including parts of the Estill Fork, Hurricane Creek, and Larkin Fork drainages) and totals approximately 40,505 acres.
<i>Acquisition Cap:</i>	<p>A specified number of acres within the Conservation Partnership Area which the Service would have authority to work with willing landowners to acquire fee title or less than fee title interest (e.g. management agreements, conservation easements). The Service would only be authorized to acquire up to this specified amount of acres.</p> <p>Under Alternative B, the proposed Acquisition Cap would be 25,120 acres.</p>
<i>Refuge Boundary:</i>	Defines the management boundary of an approved refuge. Generally comprised of Service-owned property, it can also include other properties through some sort of agreement with the landowner (e.g., management agreement, lease, and easement).

ALTERNATIVE A - NO ACTION ALTERNATIVE

Under the No Action alternative, the Service would not authorize a CPA and no new refuge would be established in the Tennessee portion of the Paint Rock River watershed. The Service would continue activities it has pursued over the last several years in the watershed, including partnership programs to protect/restore streambanks and remove fish barriers. Under this alternative, habitat protection and management would continue by existing organizations and government programs. Currently, the landscape within the AOI contains approximately 3,901 acres (or about 10 percent) of conservation lands, protected primarily through Tennessee Division of Natural Areas (TSNA) and Tennessee Wildlife Resources Agency (TWRA) ownerships and management (Figure 7). Within this alternative, the Service would pursue no new opportunities for refuge-based, wildlife-dependent public uses in the AOI.

Figure 7. Current conservation lands in the AOI (Alternative A)



The role of Alternative A in terms of its ability to meet each of the four overarching conservation goals is detailed below.

Goal 1. Functional Conservation Landscape

The existing conservation lands cover 3,901 acres (Table 6), which represents about 10 percent of the overall land base within the Tennessee portion of the Paint Rock River watershed. Conservation lands in this landscape would continue to be managed by their respective agencies and organizations under the No Action Alternative, but no further Service efforts to connect them would likely be forthcoming. Additional conservation lands managed by other agencies may be added to the conservation landscape through state and private programs, as well as other federal programs (i.e., WRP). However, recent economic conditions have hampered state land acquisition programs, and other conservation organizations are attempting to divest some of their current landholdings. Although state agencies and private organization provide an ability to assist in the protection of habitats of the area, they are unlikely to provide increased long-term protection from the anticipated changes in land use in the watershed. Current protection of about 3,901 acres of habitats protected by state ownerships would continue, with the possibility of some minor, opportunistic expansions in the future.

Forestry investments, row cropping, and cattle grazing are the predominant land uses outside of conservation lands. Although large-scale timber operations are currently not known to occur in the area, future demand for forest products could cause the conversion of large tracts of hardwood forests into pine plantations. In addition, ridge-top development is already occurring, albeit at a small scale. Future expansion of human settlements into the area is likely, and the expanded network of roads and utility corridors needed to support new communities would cause further forest fragmentation.

Goal 2. Habitat for Fish and Wildlife

Habitats found within the upper Paint Rock River watershed include upland hardwoods, riparian and bottomland hardwoods, cave and karst systems, and various river and stream habitats. For the purposes of this Draft LPP/EA, Southeast GAP Analysis Project (2008) land cover data were used as a proxy for habitat. Deciduous hardwoods are the largest land cover type in the CPA, comprising at least 37,490 acres or 93 percent of the AOI (Table 6). Hardwood forest is also the dominant habitat currently protected in TSNA and TWRA lands. Under the No Action Alternative, protection and management of all valuable wildlife habitats would be limited to existing conservation lands and programs, leaving remaining areas vulnerable to a variety of threats, including commercial forestry, agriculture, and development. In addition to forest loss, aquatic habitats are likely to be further degraded as adjacent areas are cleared of their protective forest cover.

Within this alternative, the Service would not restore or manage habitat in the Tennessee portion of the Paint Rock River watershed. Some of the riparian zones in the area have been altered for human use, resulting in deforested riparian zones and expansions of populations of invasive plants. Future efforts to restore habitat and manage invasive plants would have to come from state or non-profit programs.

Goal 3. Enhanced Water Quality, Water Quantity, and Improved Hydrology

Currently, much of the watershed is forested, which provides benefits to water quality and quantity. Forests act as a filter, removing excess nutrients and sediments from water before it enters streams and rivers. Water clarity is essential to many native stream fish species and the freshwater mussels

that depend on them for reproduction. Forested areas also store water, minimizing flooding and slowly releasing water to waterways. The water stored in forests can extend the water supply of area streams during times of drought. In some areas of the watershed, the local hydrology has been altered due to drainage ditches, low-water crossings, roads, and other structures. Hydrological alterations are likely to continue in unprotected areas as land uses change in the region. Under this alternative, federal (primarily NRCS), state, and private conservation agencies and organizations would continue to protect some of the water resources in the area.

Along some of the area's streams and creeks, streambanks are eroding due to the loss of riparian cover. In addition, low-water crossings exist, creating barriers to fish migration. Programs to strengthen and replant streambanks would have to be provided by the state and other entities. Instream barriers would also have to be removed through state and non-governmental organization efforts.

Goal 4. Wildlife-dependent Recreation and Education

The Service seeks opportunities to promote appropriate and compatible wildlife-dependent recreation on national wildlife refuges. There would be no refuge-based recreational opportunities under the No Action Alternative. A number of wildlife-dependent recreational activities exist within the landscape and would continue, including hunting, fishing, wildlife observation, and wildlife photography.

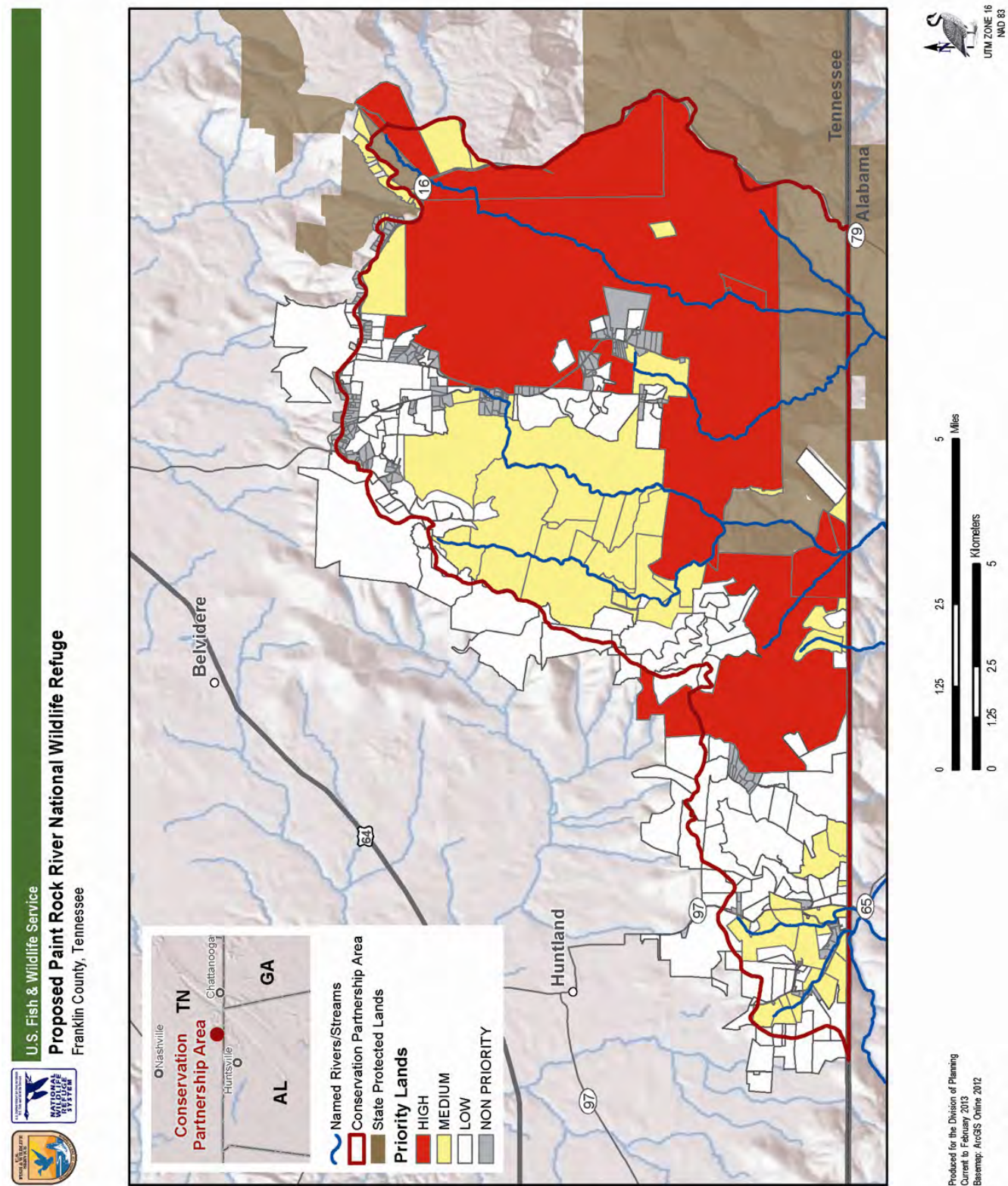
Fishing is recreationally important to the local population. The Tennessee Valley is renowned as a fishing destination for many types of freshwater fish. Areas throughout the watershed would continue to provide recreational fishing opportunities.

Other outdoor wildlife-dependent recreation and educational opportunities abound. State agencies and private organizations provide hiking and equestrian trails. Kayaking and canoeing occur on the water resources found in the area. State agencies sponsor fishing events, various workshops, youth camps, and other outdoor wildlife-dependent programs and activities. These wildlife-dependent activities would continue under the No Action Alternative.

ALTERNATIVE B - PROPOSED ACTION (ESTABLISHMENT OF NEW REFUGE)

Alternative B identifies a Conservation Partnership Area of 40,505 acres in the Tennessee portion of the Estill Fork, Hurricane Creek, and Larkin Fork sub-watersheds (Figure 8). These areas in Franklin County form the headwaters of the Paint Rock River and play an important role in the water quality and water quantity of the system. This area includes some of the largest, intact tracts of hardwood forest found in the basin. The focus of this alternative is to support one of Tennessee's priorities for America's Great Outdoors (AGO), namely to create a national wildlife refuge in the Paint Rock River watershed, as identified in the AGO's Fifty State Report (AGO 2011).

Figure 8. Priority lands within the CPA under Alternative B



The role of Alternative B in terms of its ability to meet each of the four overarching conservation goals is detailed below.

Goal 1. Functional Conservation Landscape

Compared to the No Action, Alternative B would substantially increase the amount of conservation lands in the upper Paint Rock River watershed. The portion of the Paint Rock River watershed that is located in Franklin County, Tennessee, currently includes approximately 3,901 acres of protected lands (Table 6). Most of existing conservation acreage consists of Bear Hollow Mountain WMA, with the remainder being in Walls of Jericho State Natural Area (Figure 7). Priority lands under this proposal include several parcels that are adjacent to or nearby existing TWRA lands. Combined, all priority lands that could potentially be protected by the Service total about 25,120 acres. This alternative would help connect current conservation lands, helping to reduce habitat fragmentation in the region. A larger, more contiguous block of protected lands would further minimize various conservation threats and further protect imperiled species, large hardwood tracts, water quality, and provide public use opportunities.

Goal 2. Habitat for Fish and Wildlife

Alternative B would increase habitat protection in the upper Paint Rock River watershed. A maximum of 25,120 acres of upland forests, primarily hardwoods, would be included in the proposed refuge. Three land cover types are the dominant forests in the CPA, comprising at least 36,344 acres (Table 16). Large tracts of contiguous hardwood forest are important to a host of rare and imperiled neotropical migratory birds. In addition, these forests help aquatic habitats by maintaining the water quality and quantity of downslope streams and rivers, benefitting numerous aquatic species, including imperiled fish, mussels, and snails. Other valuable habitats protected under this alternative include streams and riparian forests. About 7.8 miles of stream length would be offered protection within this alternative.

Compared to the No Action Alternative, this alternative would increase opportunities for repairing and replanting eroded streambanks. It would also allow more instream barriers (low-water crossings) to be replaced with bridges, improving aquatic habitats. Invasive plant management efforts would be implemented on a larger scale. Furthermore, upland reforestation projects would increase.

Table 16. Land cover types on priority lands under Alternative B

Habitat	Unprotected Acres		Protected Acres	Total Acres
	Priority Lands	Non-Priority Lands		
Southern Ridge and Valley Dry Calcareous Forest	20,370	73	2,002	22445
South-Central Interior Mesophytic Forest	8,023	0	913	8936
Allegheny-Cumberland Dry Oak Forest and Woodland	5,192	0	894	6086
Planted/Cultivated	1,608	45	38	1691

Habitat	Unprotected Acres		Protected Acres	Total Acres
	Priority Lands	Non-Priority Lands		
Developed	288	135	6	429
Shrub/Scrub	495	5	12	511
Southern Appalachian Low Mountain Pine Forest	203	3	6	211
Pine Plantations	59	0	0	59
Grassland/Herbaceous	49	1	20	70
South-Central Interior Small Stream and Riparian	22	0	4	25
Southern Interior Acid Cliff	14	0	0	14
Southern Interior Calcareous Cliff	10	0	6	16
Cumberland Riverscour	6	0	0	6
Open Water	5	0	0	5
Total	36,344	260	3,901	40,505

Goal 3. Enhanced Water Quality, Water Quantity, and Improved Hydrology

Alternative B would help protect and enhance the region's water quality and water quantity. These open waters include streams that support a high aquatic diversity, as well as numerous imperiled species downstream. As mentioned previously, protection of upland habitats would also benefit the water resources of the Paint Rock River drainage. Forest and other vegetated areas help protect the soil from erosion, minimizing run-off and sediments in streams. In addition, forested areas act as a sponge, helping to ameliorate the impacts of heavy rainfall by absorbing large volumes of water in the soil and root systems, reducing the likelihood of floods. Conversely, forested areas slowly release water, and help maintain stream flows during periods of low rainfall.

This alternative would also provide opportunities to restore the hydrology of some areas. Although currently not quantified, there are several ditches, roads without proper culverts, and in-stream barriers. These structures have altered the hydrology, changing the timing and distribution of the flow of water in those areas. Some hydrological restoration would be likely under this alternative, benefitting water resources and the aquatic species that depend on them.

The improved water quality, water quantity, and hydrology would not only benefit native habitats and wildlife. Local communities that utilize the water resources of the Paint Rock River would also benefit. The risk of flooding and streambank erosion would be reduced. Water quality and quantity would improve, benefitting those that use local waterways for irrigation and recreation.

Goal 4. Wildlife-dependent Recreation and Education

Currently, approximately 3,901 acres of protected lands exists in the CPA, including areas that are open to the public. This represents slightly less than 10 percent of the area, and the majority of lands in the CPA are private ownerships that are closed to the public. This alternative would increase opportunities for appropriate and compatible outdoor recreation (for definitions of appropriate and compatible uses refer to the Glossary). Although some refuge lands might be seasonally or permanently closed to protect vulnerable resources, the majority of the lands would be open to hunting, wildlife observation and photography, and environmental education and interpretation. There would likely be increased access to local streams for fishing and boating. Increased opportunities for outdoor recreation would also draw more visitors to the area.

SUMMARY

The Service believes that the proposed action (Alternative B) represents the best method for providing additional protection to the lands and waters of the upper Paint Rock River watershed in Tennessee. Under Alternative B, a more functional conservation landscape would be developed, by adding to the network of state lands, as well as conservation lands of other partners. This alternative would increase the protection and management of habitats for fish and wildlife, including several state and federal listed species. Furthermore, the additional protection of riparian areas and upland watershed buffers would enhance and improve the area's water resources, benefitting natural resources and people. Finally, this proposal would increase opportunities for wildlife-dependent recreation and education.

